

reduce the frequency of the safety-relevant hazard(s) below the calculated probability of failure threshold set forth in the SA when the problem is resolved. For hazards not identified in the SA the threshold shall be exceeded at one occurrence.

§ 229.313 Product testing results and records.

(a) Results of product testing conducted by a railroad as required by this subpart shall be recorded on preprinted forms provided by the railroad, or stored electronically. Electronic recordkeeping or automated tracking systems, subject to the provisions contained in paragraph (e) of this section, may be utilized to store and maintain any testing or training record required by this subpart. Results of product testing conducted by a vendor or private equipment owner in support of a SA shall be provided to the railroad as part of the SA.

(b) The testing records shall contain all of the following:

- (1) The name of the railroad;
- (2) The location and date that the test was conducted;
- (3) The equipment tested;
- (4) The results of tests;
- (5) The repairs or replacement of equipment;
- (6) Any preventative adjustments made; and
- (7) The condition in which the equipment is left.

(c) Each record shall be:

- (1) Signed by the employee conducting the test, or electronically coded, or identified by the automated test equipment number;
- (2) Filed in the office of a supervisory official having jurisdiction, unless otherwise noted; and
- (3) Available for inspection and copying by FRA.

(d) The results of the testing conducted in accordance with this subpart shall be retained as follows:

- (1) The results of tests that pertain to installation or modification of a product shall be retained for the life-cycle of the product tested and may be kept in any office designated by the railroad;
- (2) The results of periodic tests required for the maintenance or repair of

the product tested shall be retained until the next record is filed and in no case less than one year; and

(3) The results of all other tests and training shall be retained until the next record is filed and in no case less than one year.

(e) Electronic or automated tracking systems used to meet the requirements contained in paragraph (a) of this section shall be capable of being reviewed and monitored by FRA at any time to ensure the integrity of the system. FRA's Associate Administrator for Safety may prohibit or revoke a railroad's authority to utilize an electronic or automated tracking system in lieu of preprinted forms if FRA finds that the electronic or automated tracking system is not properly secured, is inaccessible to FRA, or railroad employees requiring access to discharge their assigned duties, or fails to adequately track and monitor the equipment. The Associate Administrator for Safety will provide the affected railroad with a written statement of the basis for the decision prohibiting or revoking the railroad from utilizing an electronic or automated tracking system.

§ 229.315 Operations and maintenance manual.

(a) The railroad shall maintain all documents pertaining to the installation, maintenance, repair, modification, inspection, and testing of a product subject to this part in one Operations and Maintenance Manual (OMM).

(1) The OMM shall be legible and shall be readily available to persons who conduct the installation, maintenance, repair, modification, inspection, and testing, and for inspection by FRA.

(2) At a minimum, the OMM shall contain all product vendor operation and maintenance guidance.

(b) The OMM shall contain the plans and detailed information necessary for the proper maintenance, repair, inspection, and testing of products subject to this subpart. The plans shall identify all software versions, revisions, and revision dates.

(c) Hardware, software, and firmware revisions shall be documented in the

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OMM according to the railroad's configuration management control plan.

(d) Safety-critical components, including spare products, shall be positively identified, handled, replaced, and repaired in accordance with the procedures specified in the railroad's configuration management control plan.

(e) A railroad shall determine that the requirements of this section have been met prior to placing a product subject to this subpart in use on their property.

§ 229.317 Training and qualification program.

(a) A railroad shall establish and implement training and qualification program for products subject to this subpart prior to the product being placed in use. These programs shall meet the requirements set forth in this section and in § 229.319.

(b) The program shall provide training for the individuals identified in this paragraph to ensure that they possess the necessary knowledge and skills to effectively complete their duties related to the product. These include:

(1) Individuals whose duties include installing, maintaining, repairing, modifying, inspecting, and testing safety-critical elements of the product;

(2) Individuals who operate trains or serve as a train or engine crew member subject to instruction and testing under part 217 of this chapter;

(3) Roadway and maintenance-of-way workers whose duties require them to know and understand how the product affects their safety and how to avoid interfering with its proper functioning; and

(4) Direct supervisors of the individuals identified in paragraphs (b)(1) through (3) of this section.

(c) When developing the training and qualification program required in this section, a railroad shall conduct a formal task analysis. The task analysis shall:

(1) Identify the specific goals of the program for each target population (craft, experience level, scope of work, etc.), task(s), and desired success rate;

(2) Identify the installation, maintenance, repair, modification, inspection, testing, and operating tasks that will

be performed on the railroad's products, including but not limited to the development of failure scenarios and the actions expected under such scenarios;

(3) Develop written procedures for the performance of the tasks identified; and

(4) Identify any additional knowledge, skills, and abilities above those required for basic job performance necessary to perform each task.

(d) Based on the task analysis, a railroad shall develop a training curriculum that includes formally structured training designed to impart the knowledge, skills, and abilities identified as necessary to perform each task.

(e) All individuals identified in paragraph (b) of this section shall successfully complete a training curriculum and pass an examination that covers the product and appropriate rules and tasks for which they are responsible (however, such persons may perform such tasks under the direct onsite supervision of a qualified person prior to completing such training and passing the examination).

(f) A railroad shall conduct periodic refresher training at intervals to be formally specified in the program, except with respect to basic skills for which proficiency is known to remain high as a result of frequent repetition of the task.

(g) A railroad shall conduct regular and periodic evaluations of the effectiveness of the training program, verifying the adequacy of the training material and its validity with respect to the railroad's products and operations.

(h) A railroad shall maintain records that designate individuals who are qualified under this section until new designations are recorded or for at least one year after such persons leave applicable service. These records shall be maintained in a designated location and be available for inspection and replication by FRA.

§ 229.319 Operating Personnel Training.

(a) The training required under § 229.317 for any locomotive engineer or other person who participates in the operation of a train using an onboard